angiographic stenosis in the potential collateral donor artery, but this may not be sufficient to eliminate the influence of coronary steal.²² A future validation of this method should include a comparison with the invasive assessment of collateral function during pharmacological stress.

The investigation of collateral function would be advanced considerably by a reliable, repeatable, quantitative non-invasive assessment of collateral function. All interventions to promote collateral development, such as the influence of pharmacological interventions, the often discussed but never proven effect of physical exercise training, and, above all, molecular genetic approaches, would benefit from such a measurement tool to replace less valuable surrogate parameters, such as exercise capacity or clinical symptoms.

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IMAGES IN CARDIOLOGY

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Congenital absence of the pulmonary valve

The CT scans show dilated pulmonary arteries (PAs) (48 mm) in a 59-year-old woman. Absent pulmonary valve syndrome (APVS) was considered at tetralogy of Fallot (ToF) repair in 1961, when no pulmonary leaflets were seen. Moderate dilatation of PAs (34 mm) was noted when a pulmonary homograft replacement for pulmonary regurgitation was inserted in 1997. Recurrent chest infections, breathlessness with good LV and RV function (PA pressure 28/14) and hoarseness secondary to a recurrent laryngeal nerve palsy led to CT scanning, confirming large PAs (panel A) compressing the right middle lobe bronchus (panel B).

APVS is a rare congenital malformation of unknown frequency. It may occur in 3–6% of patients with ToF, but can be associated with ventricular septal defect, atrial septal defect, coarctation of the aorta and tricuspid atresia. Characteristic features include aneurysmal dilatation of PAs, which often leads to major bronchial

and intrapulmonary compression, obligate pulmonary regurgitation and degrees of pulmonary branch stenoses.

Long-term follow-up of APVS without early plication of PAs is limited. Management in this case is difficult but may include right middle lobe resection

or a Lecompte procedure (translocation of the PA anterior to the aorta away from the airways to eliminate bronchial compression), with PA plication.

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